

DETAILED ACTION

Status of Application, Amendments and/or Claims

The amendment of 23 August 2006 has been entered in full. Claims 9-11 have been amended and claim 14 has been added.

Claims 1-14 are pending.

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-2, 8, 9 and 14 drawn to a TR2 DNA-binding domain mutant protein and a complex of the protein.

Group II, claim(s) 3-6, drawn to an isolated DNA encoding a TR2 DNA-binding domain mutant protein, a recombinant vector comprising the DNA, a transformant comprising the recombinant vector and a method of producing a TRF2 DNA-binding domain mutant protein.

Group III, claim(s) 7, drawn to an antibody to the TRF2 DNA-binding domain mutant protein.

Group IV, claim(s) 10-11, drawn to DNA having a 13-base nucleotide sequence as shown in SEQ ID NO:17.

Group V, claim(s) 12-13, drawn to a method of screening for substances which are capable of regulating the binding of telomeric DNA to TRF2.

The inventions listed as Groups I-V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

According to PCT Rule 13.2, unity of invention exists only when the shared same or corresponding technical feature is a contribution over the prior art. The inventions listed as Groups I-V do not relate to a single general inventive concept because they lack the same or corresponding technical feature.

Claim 1 is directed to a TRF2 DNA-binding domain mutant protein comprising:

- (a) a TRF2 DNA-binding domain mutant protein having an amino acid sequence as shown in SEQ ID NO: 2 but with at least one substitution selected from the group consisting of substitution of the lysine residue with arginine at position 10, substitution of the alanine residue with serine at position 34, substitution of the alanine residue with serine at position 47 and substitution of the arginine residue with lysine at position 59; or
 - (b) a TRF2 DNA-binding domain mutant protein having an amino acid sequence of the mutant protein of (a) above but with one or several amino acid residues other than the amino acid residues at positions 10, 34, 47 and 59 being deleted, substituted or added, and which has a higher binding ability to a duplex DNA comprising a sequence represented by 5'-TTAGGG-3' than a wild-type TRF2 DNA-binding domain protein having an amino acid sequence as shown in SEQ ID NO: 2; or
- a salt of (a) or (b).

The reference by De Lange (US Patent 5,733,730; filed August 25, 1995; issued March 31, 1998) teaches a TRF with the amino acid sequence of SEQ ID NO:15 (see column 39) that corresponds to the TRF2 DNA-binding domain mutant protein of claim 1 having an amino acid

sequence as shown in SEQ ID NO: 2 but with at least one substitution selected from the group consisting of substitution of the lysine residue with arginine at position 10, substitution of the alanine residue with serine at position 34, substitution of the alanine residue with serine at position 47 and substitution of the arginine residue with lysine at position 59 (see alignment below; the substitution at position 10, 34, 47 and 59 for SEQ ID NO:15 have been highlighted and underlined).

The prior art meets the limitations disclosed in claim 1. Thus Group I lacks novelty or inventive step and does not make a contribution over the prior art. Since the first claimed invention has no special technical feature, it cannot share a special technical feature with the other claimed invention.

Under PCR Rule 13.1, the application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of

the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IAN DANG whose telephone number is (571)272-5014. The examiner can normally be reached on Monday-Friday from 9am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Nickol can be reached on (571) 272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ian Dang
Patent Examiner
Art Unit 1647
April 8 2010

/Robert Landsman/
Primary Examiner, Art Unit 1647

Sequence Alignment

Query Match 51.9%; Score 177; DB 1; Length 53;
Best Local Similarity 59.6%;
Matches 31; Conservative 11; Mismatches 10; Indels 0; Gaps

Qy 9 KKQKWTVEESEVWKAGVQKYEGGNWAAISKNYPFVNRTAVMIKDRWRMTMKRL 60
|:| | || : ::||:|||||: | :| | ||:|:|||||:|
Db 2 KKAOWLWEEDKNLRSGVRKYEGGNWASKILLHYKFNNTSVMLKDRWRMTMKRL 53